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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,560	08/18/2003	Michael H. Gurin		4237

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EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT

PAPER NUMBER

1751

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/642,560

Applicant(s)

GURIN, MICHAEL H.

Examiner

Kallambella Vijayakumar

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-22,24 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-22 and 24-25 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 1 and 2-22 were amended. Claims 24-25 were newly added. Claims 1, 2-22 and 24-25 are currently pending with the application.

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection. The indicated allowability of claims 2-3 and 10 is withdrawn in view of the newly discovered reference(s) to Hawkins 5,976,419. Rejections based on the newly cited reference(s) follow.

#### ***Claim Rejections - 35 USC § 112***

##### **The following is a quotation of the first paragraph of 35 U.S.C. 112:**

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 24-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 24 and 25 recite a nanocomposite conductive medium having an average particle size of from about 1 to about 500 nm that is not disclosed either in the original claims or in the specification.

##### **The following is a quotation of the second paragraph of 35 U.S.C. 112:**

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3-22 recite the limitation of "The enhanced nanocomposite" while the claims are drawn to a "An enhanced nanocomposite." It is suggested to amend the preamble in the claims to claim "**An enhanced nanocomposite**" for the clarity of the claims.

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Claims 8-9 recite the limitation "each individual layer " in Line-2 respectively. There is insufficient antecedent basis for this limitation in the claims. It is suggested to change the phrases to recite the thicknesses of a layer of nanocomposite doped with conductive additives and a layer of nanocomposite doped with semiconductor additives separately.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 3-6, 10-12, 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Hawkins et al (US 5,976,419).

Hawkins et al teach a coating composition containing Al-120 aluminum powder (1-2 micron dia, See Data Sheet), polyaniline powder, a resin and additives such as surfactants and plasticizers (Col-4, Ln 21-25; Col-7, Example-I, II and III). The presence of a nanoscale surface oxide passivation layer over the Al metal powder will be inherent and this meets the limitation of thickness of the nanoscale layer in claim-1. The polyaniline powder meets the particle size of the nanoscale conductive medium (See Tanegamashima et al, US 6,211,274, C-4, Ln 36-44). The addition of surfactant meets the limitation of functionalization of polyaniline in claim-3, and the thickness of the nanoscale layer will be anticipated over the nanoscale particle size of the polyaniline, and blending of the components meets the limitation of multiple layer nanocomposite in claim-4.

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With regard to method steps 5-6, the examiner asserts that the prior art composition will be identical to that produced by the applicants' treatments of the nanocomposite.

With regard to claims 10-12, the prior art teaches the addition of surfactants and plasticizers.

With regard to claim-14, the prior art teaches Al- powder.

With regard to process steps in claims 15-18, the examiner asserts that the prior art composition will be identical to that produced by the applicant's treatments. All the limitations of the instant claims are met.

The reference is anticipatory.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claims 19-22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hawkins et al (US 5,976,419).

The disclosure on the coating composition by Hawkins et al as set forth in rejection-1 under 35 USC 102(b) is herein incorporated.

The prior art specifically does not teach energy conversion products per the claims. However, the prior art teaches creating protective galvanic cell over metal against corrosion.

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It would be obvious to a person of ordinary skilled in the art to coat surfaces against corrosion with the coatings of Hawkins including the parts surfaces of solar cell to protect from out door corrosion with reasonable expectation of success. With regard to treatments tin claims 20-22, the examiner asserts that the art product will be similar to those produced by the applicant's process steps.

#### ***Allowable Subject Matter***

Claims 7-9 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and upon overcoming rejections under 35 USC 112-II paragraph.

The prior art of record neither teaches nor fairly suggestive of a matrix comprising alternate layers of nanocomposite doped with conductive additives with a layer of nanocomposite doped semiconductor additives, or containing quantum dots.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on 8.30-6.00 Mon-Thu, 8.30-5.00 Alt Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on 571-272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KMV  
May 30, 2006.

  
Mark Kopeck  
Primary Examiner